

REMARKS

This is in response to the Office Action dated April 23, 2008. Claims 1 and 6-29 are pending in the present application, of which claims 6-29 stand withdrawn from consideration. Claim 1 is amended to incorporate the features of claims 2-5, and claims 2-5 are accordingly cancelled, without prejudice. Claim 1 is also amended to specify relative molar amounts of percarboxylic acid to olefinic unsaturation, based upon such disclosure as that in lines 2-7 on page 28 of the specification. Claim 1 is amended to specify the reaction temperature, based upon such disclosure as that in the paragraph bridging pages 27-28 of the specification. No new matter is added by this Amendment. Reconsideration of process claim 1 as amended is earnestly solicited, based upon the arguments set forth below.

Improper "final" rejection

The Examiner has introduced a new (modified) ground of rejection, but the Office Action has been made "final." Applicants respectfully submit that this is improper. MPEP 706.07(a) expressly states that "... second ... actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims, nor based on information submitted in an information disclosure statement" The Examiner has not introduced a reference submitted in an IDS, and Applicants did not amend their claims. Applicants' primary argument in traversal of the previous rejection was with regard to the Takai '618 publication, which the Examiner has now withdrawn as a reference. Accordingly, the Examiner's restatement of the rejection without the Takai '618 publication amounts to a new ground of rejection, which Applicants have not yet had the opportunity to address. Applicants therefore respectfully request withdrawal of the finality of the outstanding Office Action.

Prior art rejection

Claims 1-5 were rejected as being unpatentable over Yur've et al. in view of DE '465, JP '006, Hau, and JP '043. Office Action, page 3. The rejection is respectfully traversed.

Only paragraphs 4 and 5 on page 3 of the outstanding Office Action address the prior art rejection. Paragraph 6 therein refers to the provisional obviousness-type double patenting rejections. The Examiner contends that “The rejections remain applicable without Takai et al.” However, the previous statement of the rejection, in the Office Action of December 10, 2007, depended upon “using an ethyl acetate solution of peracetic acid as per Takai ... and having little or no water as shown in Takai ... in order to ... prevent the hydrolysis of the epoxy groups (Takai, page 4, paragraph 47” The Examiner fails to explain how the rejections allegedly remain applicable without the Takai disclosure which was an essential component of the rejection in its original form.

Clearly, the Examiner has not established in the record, either by scientific explanation or by evidence, that, *prima facie*, one of ordinary skill in this art, following the combined teachings of the applied references, would have epoxidized an alicyclic diolefin compound of formula (II) as set forth in claim 1, at a reaction temperature of 20 to 70°C, with 1.0 to 3.0 mol, based on 1 mol of the unsaturated groups in the alicyclic diolefin, of an organic percarboxylic acid which comprises an ethyl acetate solution of peracetic acid, wherein said organic percarboxylic acid is obtained by oxidation of a corresponding aldehyde with oxygen, wherein the water content of the organic percarboxylic acid is 0.8 weight-% or less. See, e.g., *KSR Int'l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727, 1741 (2007) (“Although common sense directs caution as to a patent application claiming as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.”); *In re Warner*, 379 F.2d 1011, 1016 (CCPA 1967) (“... where the invention sought to be patented resides in a combination of old elements, the proper inquiry is whether *bringing them together was obvious* and not, whether one of ordinary skill, having the invention before him, would find it obvious though hindsight to construct the invention from elements of the prior art.”); cf. *Ex parte Levengood*, 28 USPQ2d 1300, 1301-02 (BPAI 1993), citing *Ex parte Gerlach*, 212 USPQ 471 (Bd.App. 1980) (“At best, the examiner's comments regarding obviousness amount to an assertion that one of ordinary skill in the relevant art would have been able to arrive at appellant's invention

because he had the necessary skills to carry our the requisite process steps. This is an inappropriate standard for obviousness. ... That which is within the capabilities of one skilled in the art is not synonymous with obviousness.”).

Moreover, the present invention provides unexpected benefits. The Examiner is respectfully reminded that one of the *Graham* factors is consideration of evidence of secondary considerations.

A feature of the outstanding rejection is the Examiner’s reliance upon JP ‘043. However, in the technology of JP ‘043, there is a problem, which is that the cyclohexene oxide preferentially reacts with acetic acid obtained as a by-product. This adversely affects, for instance, the yield of the desired product obtained by distillation. See paragraph [0010] in the reference.

In contrast, with the present invention, the cycloaliphatic diepoxy compound is stable, even though some acetic acid by-product is present. The above-mentioned problem, which is experienced with cyclohexane oxide in JP ‘043, is avoided in the case of cycloaliphatic diepoxy compounds in the present invention. Cycloaliphatic diepoxy compounds in the present invention are unexpectedly obtained in significantly better yields than are cyclohexene oxides in the reference.

It has surprisingly been found that the use of a specific organic percarboxylic acid (that is, peracetic acid as recited in the present claims) overcomes the problems associated with other known epoxidation agents. Examples 1 and 2 and Comparative Example 2 in Applicants’ specification show that peracetic acid – produced in a specific manner and having an extremely low water content – provides significantly better yields and oxirane oxygen concentrations than does MoCl₅ and tert-butyl hydroperoxide (see specification, page 59, lines 9-10, page 60, lines 7-8, and page 61, lines 19-20), which are similar to epoxidation agents used in the method disclosed by Yur’ve et al. The present invention provides highly pure cycloaliphatic diepoxy compounds in extremely good yields.

Accordingly, although Applicants do not concede that the Examiner has established a *prima facie* case of obviousness with respect to the present invention, in view of the unexpected benefits provided by the present invention as compared to the prior art, the

rejection of claim 1 as being drawn to technology that is *prima facie* obvious from Yur've et al. in view of DE '465, JP '006, Hau, and JP '043 has been rebutted and should be withdrawn.

Provisional double patenting rejections

On page 2 of the Office Action, claims 1-5 are *provisionally* rejected on the ground of obviousness-type double patenting over claim 4 of copending application Serial No. 10/567,253 in view of Yur've, DE '465, JP '006, Hau, and JP '043. Claim 4 of the copending application is drawn to a thermosetting resin composition, while the present claims are drawn to processes for the preparation of a monomer. Therefore this rejection is not justified.

On page 3 of the Office Action, claims 1-5 are *provisionally* rejected on the ground of obviousness-type double patenting over claims 5 and 6 of copending application Serial No. 10/883,162 in view of Yur've, DE '465, JP '006, Hau, and JP '043. Claims 5 and 6 of the copending application are drawn to a liquid epoxy resin composition while the present claims are drawn to processes for the preparation of a monomer. Therefore the rejection is not justified.

Applicants also note that the Office Action of October 15, 2007 establishes distinctions between processes and compositions.

Contact information

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Richard Gallagher, Registration No. 28,781, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

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Respectfully submitted,

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By 
Marc S. Weiner
Registration No.: 32,181
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant